Instructions –  (1) All Questions are Compulsory.

(2) Illustrate your answers with neat sketches wherever necessary.

(3) Figures to the right indicate full marks.

(4) Use of Non-programmable Electronic Pocket Calculator is permissible.

(5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

1. A) Attempt any THREE of the following: 12

(i) State necessity of cross-over network. Draw two way cross over net work and explain its working.

(ii) Draw neat sketch of Dish antenna and list any four specifications of Dish antenna.

(iii) Define the following terms with respect to TV system.

1) Hue
2) Saturation
3) Chrominance signal
4) Brightness

(iv) List the types of drive motors used in TV system.
b) **Attempt any ONE of the following:**

(i) Why negative modulation is used in TV system instead of positive modulation. Justify your answer with respect to following points:

1) Effect of noise of picture signal
2) Effect of noise on synchronization
3) Peak power available

(ii) Draw circuit diagram of RGB drive amplifier and explain its working.

2. **Attempt any FOUR of the following:**

a) State working principle and working of LCD TV with appropriate diagram.

b) Compare additive colour mixing with subtractive colour mixing with respect to any four points.

c) Draw sketch showing constructional details of yagi-uda antenna.

d) Explain data detection technique used in CD player with the help of neat sketch.

e) Describe NHK MUSK system for HDTV.

f) Compare Mono amplifier system with stereo amplifier system.

3. **Attempt any FOUR of the following:**

a) Draw block diagram of DTH system and explain its operation.

b) With the help of suitable diagram, explain how U and V signals are separated in colour TV.

c) Draw block diagram of Hi-fi audio amplifier. State any four characteristics of Hi-fi system.

d) List any four advantages of fluroscent display system used in CD player.

e) State any eight CCIR-B standards for colour signal transmission and reception.
4. a) **Attempt any THREE of the following:**
   
   (i) What is meant by flicker? How flicker is eliminated by interlaced scanning? Explain.
   
   (ii) State principle and explain working of Delta gun picture tube with the help of neat sketch.
   
   (iii) Draw block diagram of CD player.
   
   (iv) Draw typical cable TV network plan and state the function of different types of amplifiers used in cable TV system.

b) **Attempt any ONE of the following:**

   (i) Draw circuit diagram showing how EHT supply is generated from line output stage in colour TV.
   
   (ii) Draw composite video signal showing all details and explain the following terms:
   
   1) DC level
   2) Blanking level
   3) Whiter than white level
   4) Pedestal height

5. **Attempt any TWO of the following:**

   a) Draw block diagram of PAL-D-Decoder and explain its working in detail.
   
   b) State importance of LNBC. Draw block diagram of LNBC and explain its working in detail.
   
   c) Draw block diagram of colour TV transmitter (Encoder) and explain its working in detail.
6. Attempt any **FOUR** of the following: 16

a) Define the term resolution with respect to TV system. Explain the term horizontal resolution and vertical resolution in detail.

b) State principle and explain working of Vidicon camera tube with the help of neat sketch.

c) Draw block diagram of closed circuit TV (CCTV) system and explain function of each block.

d) Compare following types of loud speakers with respect to any four points. (as frequency range, size, sketch, application, their frequency response etc.)

e) State TV channel allocation for Band I and Band III.